

SEQUENCE LISTING

<110> INOUE, Makoto
HASEGAWA, Mamoru
HIRONAKA, Takashi

<120> Paramyxoviral Vectors Encoding
Antibodies and Uses Thereof

<130> 50026/049001

<150> PCT/JP03/07005

<151> 2003-06-03

<150> 2002-161964

<151> 2002-06-03

<160> 63

<170> FastSEQ for Windows Version 4.0

<210> 1

<211> 10

<212> DNA

<213> Sendai virus

<400> 1

ctttcaccct

10

<210> 2

<211> 15

<212> DNA

<213> Sendai virus

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ttttttcttac tacgg

15

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<223> a spacer sequence

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cggccgcaga tcttcacg

18

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<400> 4

atgcatgccg gcagatga 18

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<223> a primer for amplifying Sendai virus genome
fragment

<400> 5

gttgagtact gcaagagc 18

<210> 6

<211> 42

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<223> a primer for amplifying Sendai virus genome
fragment

<400> 6

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<223> a primer for amplifying Sendai virus genome
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<400> 7

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<210> 8

<211> 21

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<223> a primer for amplifying Sendai virus genome
fragment

<400> 8

tgggtgaatg agagaatcag c 21

<210> 9

<211> 1550

<212> DNA

<213> Artificial Sequence

<220>

<223> a gene fragment encoding V regions of antibody
IN-1

<221> CDS
 <222> (18)...(749)

<221> CDS
 <222> (801)...(1505)

<400> 9
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 Met Lys Lys Thr Ala Ile Ala Ile Ala Val Ala
 1 5 10

ctg gct ggt ttc gct acc gta gcg cag gcc gaa gtt aaa ctg cat gag 98
 Leu Ala Gly Phe Ala Thr Val Ala Gln Ala Glu Val Lys Leu His Glu
 15 20 25

tca ggg cct ggg ctg gta agg cct ggg act tca gtg aag ata tcc tgc 146
 Ser Gly Pro Gly Leu Val Arg Pro Gly Thr Ser Val Lys Ile Ser Cys
 30 35 40

aag gct tct ggc tac acc ttc act aac tac tgg cta ggt tgg gta aag 194
 Lys Ala Ser Gly Tyr Thr Phe Thr Asn Tyr Trp Leu Gly Trp Val Lys
 45 50 55

cag agg cct gga cat gga ctt gag tgg att gga gat att tac cct gga 242
 Gln Arg Pro Gly His Gly Leu Glu Trp Ile Gly Asp Ile Tyr Pro Gly
 60 65 70 75

ggt ggt tat act aac tac aat gag aag ttc aag ggc aag gcc aca ctg 290
 Gly Gly Tyr Thr Asn Tyr Asn Glu Lys Phe Lys Gly Lys Ala Thr Leu
 80 85 90

act gca gac aca tcc tcc agc act gcc tac atg cag ctc agt agc ctg 338
 Thr Ala Asp Thr Ser Ser Ser Thr Ala Tyr Met Gln Leu Ser Ser Leu
 95 100 105

aca tct gag gac tct gct gtc tat ttc tgt gca aga ttt tac tac ggt 386
 Thr Ser Glu Asp Ser Ala Val Tyr Phe Cys Ala Arg Phe Tyr Tyr Gly
 110 115 120

agt agc tac tgg tac ttc gat gtc tgg ggc caa ggc acc acg gtc acc 434
 Ser Ser Tyr Trp Tyr Phe Asp Val Trp Gly Gln Gly Thr Thr Val Thr
 125 130 135

gtc tcc tca gca aag acc act cct ccg tct gtt tac cct ctg gct cct 482
 Val Ser Ser Ala Lys Thr Thr Pro Pro Ser Val Tyr Pro Leu Ala Pro
 140 145 150 155

ggt tct gcg gct cag act aac tct atg gtg act ctg gga tgc ctg gtc 530
 Gly Ser Ala Ala Gln Thr Asn Ser Met Val Thr Leu Gly Cys Leu Val
 160 165 170

aag ggc tat ttc cct gag cca gtg aca gtg acc tgg aac tct gga tcc 578
 Lys Gly Tyr Phe Pro Glu Pro Val Thr Val Thr Trp Asn Ser Gly Ser
 175 180 185

ctg tcc agc ggt gtg cac acc ttc cca gct gtc ctg caa tct gac ctc 626
 Leu Ser Ser Gly Val His Thr Phe Pro Ala Val Leu Gln Ser Asp Leu
 190 195 200

tac act ctg agc agc tca gtg act gtc ccc tcc agc acc tgg ccc agc	674
Tyr Thr Leu Ser Ser Ser Val Thr Val Pro Ser Ser Thr Trp Pro Ser	
205 210 215	
gag acc gtc acc tgc aac gtt gcc cac ccg gct tct agc acc aaa gtt	722
Glu Thr Val Thr Cys Asn Val Ala His Pro Ala Ser Ser Thr Lys Val	
220 225 230 235	
gac aag aaa atc gta ccg cgc gac tgc taaccgtagt aagaaaaact	769
Asp Lys Lys Ile Val Pro Arg Asp Cys	
240	
taggggtgaaa gttcatcgcg gccgtacggc c atg aaa caa agc act att gca	821
Met Lys Gln Ser Thr Ile Ala	
245 250	
ctg gca ctc tta ccg tta ctg ttt acc cct gtg aca aaa gcc gac atc	869
Leu Ala Leu Leu Pro Leu Leu Phe Thr Pro Val Thr Lys Ala Asp Ile	
255 260 265	
gag ctc acc cag tct cca gca atc atg gct gca tct gtg gga gaa act	917
Glu Leu Thr Gln Ser Pro Ala Ile Met Ala Ala Ser Val Gly Glu Thr	
270 275 280	
gtc acc atc aca tgt gga gca agt gag aat att tac ggt gct tta aat	965
Val Thr Ile Thr Cys Gly Ala Ser Glu Asn Ile Tyr Gly Ala Leu Asn	
285 290 295	
tgg tat cag cgg aaa cag gga aaa tct cct cag ctc ctg atc tat ggt	1013
Trp Tyr Gln Arg Lys Gln Gly Lys Ser Pro Gln Leu Leu Ile Tyr Gly	
300 305 310 315	
gca acc aac ttg gca gat ggc atg tca tcc agg ttc agt ggc agt gga	1061
Ala Thr Asn Leu Ala Asp Gly Met Ser Ser Arg Phe Ser Gly Ser Gly	
320 325 330	
tct ggt aga cag tat tct ctc aag atc agt agc ctg cat cct gac gat	1109
Ser Gly Arg Gln Tyr Ser Leu Lys Ile Ser Ser Leu His Pro Asp Asp	
335 340 345	
gtt gca acg tat tac tgt caa aat gtg tta agt act cct cgg acg ttc	1157
Val Ala Thr Tyr Tyr Cys Gln Asn Val Leu Ser Thr Pro Arg Thr Phe	
350 355 360	
gga gct ggg acc aag ctc gag ctg aag cgc gct gat gct gca ccg act	1205
Gly Ala Gly Thr Lys Leu Glu Leu Lys Arg Ala Asp Ala Ala Pro Thr	
365 370 375	
gta tcc atc ttc cca cca tcc agt gag cag tta aca tct gga ggt gcc	1253
Val Ser Ile Phe Pro Pro Ser Ser Glu Gln Leu Thr Ser Gly Gly Ala	
380 385 390 395	
tca gtc gtg tgc ttc ttg aac aac ttc tac ccc aaa gac atc aat gtc	1301
Ser Val Val Cys Phe Leu Asn Asn Phe Tyr Pro Lys Asp Ile Asn Val	
400 405 410	
aag tgg aag att gat ggc agt gaa cga caa aat ggc gtc ctg aac agt	1349

Lys	Trp	Lys	Ile	Asp	Gly	Ser	Glu	Arg	Gln	Asn	Gly	Val	Leu	Asn	Ser		
			415					420					425				
tgg	act	gat	cag	gac	agc	aaa	gac	agc	acc	tac	agc	atg	agc	agc	acc	1397	
Trp	Thr	Asp	Gln	Asp	Ser	Lys	Asp	Ser	Thr	Tyr	Ser	Met	Ser	Ser	Thr		
			430				435					440					
ctc	acg	ttg	acc	aag	gac	gag	tat	gaa	cga	cat	aac	agc	tat	acc	tgt	1445	
Leu	Thr	Leu	Thr	Lys	Asp	Glu	Tyr	Glu	Arg	His	Asn	Ser	Tyr	Thr	Cys		
			445			450					455						
gag	gcc	act	cac	aag	aca	tca	act	tca	ccc	att	gtc	aag	agc	ttc	aac	1493	
Glu	Ala	Thr	His	Lys	Thr	Ser	Thr	Ser	Pro	Ile	Val	Lys	Ser	Phe	Asn		
460					465				470					475			
agg	aat	gag	tgt	tagtccgtag	taagaaaaaac	ttaggggtgaa	agttcatgcg									1545	
Arg	Asn	Glu	Cys														
gccgc																1550	
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			20					25					30				
Val	Arg	Pro	Gly	Thr	Ser	Val	Lys	Ile	Ser	Cys	Lys	Ala	Ser	Gly	Tyr		
		35					40					45					
Thr	Phe	Thr	Asn	Tyr	Trp	Leu	Gly	Trp	Val	Lys	Gln	Arg	Pro	Gly	His		
	50					55					60						
Gly	Leu	Glu	Trp	Ile	Gly	Asp	Ile	Tyr	Pro	Gly	Gly	Gly	Tyr	Thr	Asn		
65					70				75						80		
Tyr	Asn	Glu	Lys	Phe	Lys	Gly	Lys	Ala	Thr	Leu	Thr	Ala	Asp	Thr	Ser		
			85						90				95				
Ser	Ser	Thr	Ala	Tyr	Met	Gln	Leu	Ser	Ser	Leu	Thr	Ser	Glu	Asp	Ser		
			100					105					110				
Ala	Val	Tyr	Phe	Cys	Ala	Arg	Phe	Tyr	Tyr	Gly	Ser	Ser	Tyr	Trp	Tyr		
		115					120					125					
Phe	Asp	Val	Trp	Gly	Gln	Gly	Thr	Thr	Val	Thr	Val	Ser	Ser	Ala	Lys		
	130					135					140						
Thr	Thr	Pro	Pro	Ser	Val	Tyr	Pro	Leu	Ala	Pro	Gly	Ser	Ala	Ala	Gln		
145					150					155					160		
Thr	Asn	Ser	Met	Val	Thr	Leu	Gly	Cys	Leu	Val	Lys	Gly	Tyr	Phe	Pro		
			165					170						175			
Glu	Pro	Val	Thr	Val	Thr	Trp	Asn	Ser	Gly	Ser	Leu	Ser	Ser	Gly	Val		
			180				185						190				
His	Thr	Phe	Pro	Ala	Val	Leu	Gln	Ser	Asp	Leu	Tyr	Thr	Leu	Ser	Ser		
	195						200					205					
Ser	Val	Thr	Val	Pro	Ser	Ser	Thr	Trp	Pro	Ser	Glu	Thr	Val	Thr	Cys		
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Asn Val Ala His Pro Ala Ser Ser Thr Lys Val Asp Lys Lys Ile Val
 225 230 235 240
 Pro Arg Asp Cys

<210> 11
 <211> 235
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> an immunoglobulin IN-1 light chain

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 Pro Val Thr Lys Ala Asp Ile Glu Leu Thr Gln Ser Pro Ala Ile Met
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 35 40 45
 Asn Ile Tyr Gly Ala Leu Asn Trp Tyr Gln Arg Lys Gln Gly Lys Ser
 50 55 60
 Pro Gln Leu Leu Ile Tyr Gly Ala Thr Asn Leu Ala Asp Gly Met Ser
 65 70 75 80
 Ser Arg Phe Ser Gly Ser Gly Ser Gly Arg Gln Tyr Ser Leu Lys Ile
 85 90 95
 Ser Ser Leu His Pro Asp Asp Val Ala Thr Tyr Tyr Cys Gln Asn Val
 100 105 110
 Leu Ser Thr Pro Arg Thr Phe Gly Ala Gly Thr Lys Leu Glu Leu Lys
 115 120 125
 Arg Ala Asp Ala Ala Pro Thr Val Ser Ile Phe Pro Pro Ser Ser Glu
 130 135 140
 Gln Leu Thr Ser Gly Gly Ala Ser Val Val Cys Phe Leu Asn Asn Phe
 145 150 155 160
 Tyr Pro Lys Asp Ile Asn Val Lys Trp Lys Ile Asp Gly Ser Glu Arg
 165 170 175
 Gln Asn Gly Val Leu Asn Ser Trp Thr Asp Gln Asp Ser Lys Asp Ser
 180 185 190
 Thr Tyr Ser Met Ser Ser Thr Leu Thr Leu Thr Lys Asp Glu Tyr Glu
 195 200 205
 Arg His Asn Ser Tyr Thr Cys Glu Ala Thr His Lys Thr Ser Thr Ser
 210 215 220
 Pro Ile Val Lys Ser Phe Asn Arg Asn Glu Cys
 225 230 235

<210> 12
 <211> 68
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> a synthetic oligonucleotide for constructing a Fab
 gene fragment

<400> 12
 cggaattcgc ggccgccgta cggccatgaa aaagacagct atcgcgattg cagtggcact 60

ggctgggtt 68

<210> 13
 <211> 70
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> a synthetic oligonucleotide for constructing a Fab
 gene fragment

<400> 13
 tgcagtggca ctggctgggt tcgctaccgt agcgcaggcc gaagttaaac tgcattgagtc 60
 agggcctggg 70

<210> 14
 <211> 70
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> a synthetic oligonucleotide for constructing a Fab
 gene fragment

<400> 14
 tgcattgagtc agggcctggg ctggtaaggc ctgggacttc agtgaagata tcttgcaagg 60
 cttctggcta 70

<210> 15
 <211> 60
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> a synthetic oligonucleotide for constructing a Fab
 gene fragment

<400> 15
 actgcagaca catctccag cactgcctac atgcagctca gtagcctgac atctgaggac 60

<210> 16
 <211> 60
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> a synthetic oligonucleotide for constructing a Fab
 gene fragment

<400> 16
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<210> 17
 <211> 60
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> a synthetic oligonucleotide for constructing a Fab
 gene fragment

<400> 17
 aagattttac tacggtagta gctactggta cttcgatgtc tggggccaag gcaccacggt 60

<210> 18
 <211> 60
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> a synthetic oligonucleotide for constructing a Fab
 gene fragment

<400> 18
 cgggatccct gtccagcggg gtgcacacct tcccagctgt cctgcaatct gacctctaca 60

<210> 19
 <211> 70
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> a synthetic oligonucleotide for constructing a Fab
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<400> 19
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 cagcgagacc 70

<210> 20
 <211> 70
 <212> DNA
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<220>
 <223> a synthetic oligonucleotide for constructing a Fab
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<400> 20
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 ttgacaagaa 70

<210> 21
 <211> 70
 <212> DNA
 <213> Artificial Sequence

<220>
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<400> 21
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accatcacat 70

<210> 22
 <211> 70
 <212> DNA
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<220>
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<400> 22
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 tcagcggaaa 70

<210> 23
 <211> 70
 <212> DNA
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<220>
 <223> a synthetic oligonucleotide for constructing a Fab
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<400> 23
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 acttggcaga 70

<210> 24
 <211> 72
 <212> DNA
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<220>
 <223> a synthetic oligonucleotide for constructing a Fab
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<400> 24
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<210> 25
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<220>
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<400> 25
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 taccocaaag 70

<210> 26
 <211> 70
 <212> DNA
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<220>
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<400> 26
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 aaatggcgtc 70

<210> 27
 <211> 79
 <212> DNA
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<220>
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 gene fragment

<400> 27
 caagagcttc aacaggaatg agtgtagtc cgtagtaaga aaaacttagg gtgaaagtgc 60
 atgcggccgc aagcttggg 79

<210> 28
 <211> 80
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> a synthetic oligonucleotide for constructing a Fab
 gene fragment

<400> 28
 tgaacgacat aacagctata cctgtgaggc cactcacaag acatcaactt cacccattgt 60
 caagagcttc aacaggaatg 80

<210> 29
 <211> 70
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> a synthetic oligonucleotide for constructing a Fab
 gene fragment

<400> 29
 gacagcacct acagcatgag cagcaccctc acgttgacca aggacgagta tgaacgacat 60
 aacagctata 70

<210> 30
 <211> 70
 <212> DNA
 <213> Artificial Sequence

<220>
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 gene fragment

<400> 30
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acagcatgag 70

<210> 31
 <211> 70
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> a synthetic oligonucleotide for constructing a Fab
 gene fragment

<400> 31
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 gaagcttggg 70

<210> 32
 <211> 80
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> a synthetic oligonucleotide for constructing a Fab
 gene fragment

<400> 32
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 ttactgtcaa aatgtgttaa 80

<210> 33
 <211> 70
 <212> DNA
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<220>
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 gene fragment

<400> 33
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 cagtattctc 70

<210> 34
 <211> 70
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> a synthetic oligonucleotide for constructing a Fab
 gene fragment

<400> 34
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 agctcaccca 70

<210> 35
 <211> 70
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> a synthetic oligonucleotide for constructing a Fab
 gene fragment

<400> 35
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 actggcactc 70

<210> 36
 <211> 70
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> a synthetic oligonucleotide for constructing a Fab
 gene fragment

<400> 36
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 agggtgaaag 70

<210> 37
 <211> 70
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> a synthetic oligonucleotide for constructing a Fab
 gene fragment

<400> 37
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 ctggatcccg 70

<210> 38
 <211> 70
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> a synthetic oligonucleotide for constructing a Fab
 gene fragment

<400> 38
 gtctgtttac cctctggctc ctggttctgc ggctcagact aactctatgg tgactctggg 60
 atgcctgggc 70

<210> 39
 <211> 70
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> a synthetic oligonucleotide for constructing a Fab
 gene fragment

<400> 39
 tggggccaag gcaccacggt caccgtctcc tcagcaaaga ccactcctcc gtctgtttac 60

cctctggctc 70

<210> 40

<211> 70

<212> DNA

<213> Artificial Sequence

<220>

<223> a synthetic oligonucleotide for constructing a Fab
gene fragment

<400> 40

gaggtgggta tactaactac aatgagaagt tcaagggcaa ggccacactg actgcagaca 60
catcctccag 70

<210> 41

<211> 70

<212> DNA

<213> Artificial Sequence

<220>

<223> a synthetic oligonucleotide for constructing a Fab
gene fragment

<400> 41

aaagcagagg cctggacatg gacttgagtg gattggagat atttacctg gaggtgggta 60
tactaactac 70

<210> 42

<211> 70

<212> DNA

<213> Artificial Sequence

<220>

<223> a synthetic oligonucleotide for constructing a Fab
gene fragment

<400> 42

tcttgcaagg cttctgggta caccttcact aactactggc taggttgggt aaagcagagg 60
cctggacatg 70

<210> 43

<211> 753

<212> DNA

<213> Artificial Sequence

<220>

<223> an anti-CD28 ScFv antibody gene (SYN205-13)

<400> 43

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gccaccatct cctgcagagc cagtgcagagt gttgaatatt atgtcacaag tttaatgcag 120
tggtaccagc agaagccagg acagccaccc aaactcctca tctttgctgc atccaacgta 180
gaatctgggg tccctgccag gtttagtggc agtgggtctg ggacaaactt cagcctcaac 240
atccatcctg tggacgagga tgatgttgca atgtatttct gtcagcaaag taggaagggt 300
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gggtggcggat caggtggcgg aggctcgag gtgaaactgc agcagtcctg acctggcctg 420
gtgacgccct cacagagcct gtccatcact tgtactgtct ctgggttttc attaagcgac 480

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tatggtgttc actgggttcg ccagtctcca ggacagggac tggagtggct gggagtaata 540
tgggctggtg gaggcacgaa ttataattcg gctctcatgt ccagaaagag catcagcaaa 600
gacaactcca agagccaagt tttcttaaaa atgaacagtc tgcaagctga tgacacagcc 660
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caagggaacca cggtcactgt ctctctgtct aga 753

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<210> 44
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 <213> Artificial Sequence

<220>
 <223> an anti-CD28 ScFv antibody gene (SYN205-13)

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Gln Arg Ala Thr Ile Ser Cys Arg Ala Ser Glu Ser Val Glu Tyr Tyr
          20          25          30
Val Thr Ser Leu Met Gln Trp Tyr Gln Gln Lys Pro Gly Gln Pro Pro
          35          40          45
Lys Leu Leu Ile Phe Ala Ala Ser Asn Val Glu Ser Gly Val Pro Ala
          50          55          60
Arg Phe Ser Gly Ser Gly Ser Gly Thr Asn Phe Ser Leu Asn Ile His
65          70          75          80
Pro Val Asp Glu Asp Asp Val Ala Met Tyr Phe Cys Gln Gln Ser Arg
          85          90          95
Lys Val Pro Tyr Thr Phe Gly Gly Gly Thr Lys Leu Glu Ile Lys Arg
          100         105         110
Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gln
          115         120         125
Val Lys Leu Gln Gln Ser Gly Pro Gly Leu Val Thr Pro Ser Gln Ser
          130         135         140
Leu Ser Ile Thr Cys Thr Val Ser Gly Phe Ser Leu Ser Asp Tyr Gly
145         150         155         160
Val His Trp Val Arg Gln Ser Pro Gly Gln Gly Leu Glu Trp Leu Gly
          165         170         175
Val Ile Trp Ala Gly Gly Gly Thr Asn Tyr Asn Ser Ala Leu Met Ser
          180         185         190
Arg Lys Ser Ile Ser Lys Asp Asn Ser Lys Ser Gln Val Phe Leu Lys
          195         200         205
Met Asn Ser Leu Gln Ala Asp Asp Thr Ala Val Tyr Tyr Cys Ala Arg
          210         215         220
Asp Lys Gly Tyr Ser Tyr Tyr Tyr Ser Met Asp Tyr Trp Gly Gln Gly
225         230         235         240
Thr Thr Val Thr Val Ser Ser
          245

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<210> 45
 <211> 131
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> a NotI fragment containing an EIS sequence in
 pGEM-4Zcst

<400> 45
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cctcagtcac aatgtccaga ggatctagac cgtagtaaga aaaacttagg gtgaaagttc 120
atcgcgccg c 131

<210> 46
<211> 22
<212> PRT
<213> Mus musculus

<400> 46
Met Asp Phe Gln Val Gln Ile Phe Ser Phe Leu Leu Ile Ser Ala Ser
1 5 10 15
Val Ile Met Ser Arg Gly
20

<210> 47
<211> 70
<212> DNA
<213> Artificial Sequence

<220>
<223> a synthetic oligonucleotide for constructing an
anti-CD28cst gene fragment

<400> 47
tctagagaca tcgagctcac tcagtctcca gcttctttgg ctgtgtctct agggcagaga 60
gccaccatct 70

<210> 48
<211> 70
<212> DNA
<213> Artificial Sequence

<220>
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anti-CD28cst gene fragment

<400> 48
agggcagaga gccaccatct cctgcagagc cagtgcagag gttgaatatt atgtcacaag 60
tttaatgcag 70

<210> 49
<211> 70
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<220>
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anti-CD28cst gene fragment

<400> 49
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tccttgctgc 70

<210> 50
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<210> 51
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 acctggcctg 70

<210> 52
 <211> 70
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<210> 53
 <211> 70
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<210> 54
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<400> 54
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ctactggggc 70

<210> 55
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anti-CD28cst gene fragment

<400> 55
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<210> 56
<211> 70
<212> DNA
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<210> 57
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<210> 58
<211> 70
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<400> 58
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agacagtaca 70

<210> 59
<211> 70
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<213> Artificial Sequence

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anti-CD28cst gene fragment

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<210> 60

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anti-CD28cst gene fragment

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<210> 61

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<400> 62

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<210> 63

<211> 23

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<223> a synthetic primer F6

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